

Notice of Allowability

Application No.

09/895,687

Examiner

Mark Ruthkosky

Applicant(s)

BUTCHER ET AL.

Art Unit

1745

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 2/4/2005.
2. ☒ The allowed claim(s) is/are 21-23.
3. ☒ The drawings filed on 09 December 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 6/29/2001
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

Mark Ruthkosky
Primary Patent Examiner
Art Unit 1745

Mark Ruthkosky 2/18/05

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DETAILED ACTION

Response to Amendment

Claims 21-23 are allowed. The applicant has canceled the remaining claims in the amendment of 2/4/2005

The rejection of claims 3, 4, 11, 20 and 28 under 35 U.S.C. 103(a) as being unpatentable over Carlstrom, Jr. et al. (US 6,015,633) in view of Roberts et al. (US 5,458,837) has been overcome by the applicant's canceling of the claims in the amendment of 2/4/2005.

The rejection of claims 3, 5, 6, 7, 12, 13, 14, 20 and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlstrom, Jr. et al. (US 6,015,633) in view of Vic (GB 2,162,680) has been overcome by the applicant's canceling of the claims in the amendment of 2/4/2005.

The rejection of claims 3-17, 20, and 24-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carlstrom, Jr. et al. (US 6,015,633) in view of Seidenberg (US 4,765,396) has been overcome by the applicant's canceling of the claims in the amendment of 2/4/2005.

Examiner's Amendment

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

The application has been amended as follows:

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Change the title to "Method for Humidifying Reactant Gases for use in a Fuel Cell."

The amended title of the invention is more descriptive and clearly indicative of the invention to which the allowed claims are directed.

Allowable Subject Matter

Claims 21-23 are allowed.

The following is an examiner's statement of reasons for allowance:

The instant claims are to a system for humidifying a gas, such as a gas in a fuel cell, comprising a housing defining a humidification chamber through which a gas travels and a humidification assembly adjacent to the housing. The assembly includes a source of humidifying liquid and a porous wick for carrying the humidifying liquid from the source into the chamber. The wick separates the source of humidifying liquid from the humidification chamber such that the humidifying liquid flows through the wick before humidifying the gas traveling through the humidification chamber. The reactant gas and the positioning of the humidifying source in the fuel cell before reaction, give structure to the humidification chamber in the fuel cell. The method of claim 21 includes forming a ceramic wick by mixing water, nitric acid, hollow polymer spheres and a material of zirconium, alumina or silica ceramics. Instant claim 22 includes a method for humidifying a gas using a metallic wick formed by adding a metallic material to a binding agent, water, and hollow polymer spheres. The prior art does not teach a method of humidifying gasses wherein a porous wick is formed from a mixture of water, nitric acid, hollow polymer spheres and a zirconium, alumina or silica ceramic material OR a mixture of a metallic material, a binding agent, water, and hollow polymer spheres.

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The most pertinent prior art has been cited. For example, Carlstrom, Jr. et al. (US 6,015,633) teaches a system for humidifying a gas used in a fuel cell comprising a housing defining a humidification chamber through which a gas travels and a humidification assembly adjacent to the housing. The assembly includes a source of humidifying liquid and a porous wick for carrying the humidifying liquid from the source into the chamber. The wick separates the source of humidifying liquid from the humidification chamber such that the humidifying liquid flows through the wick before humidifying the gas traveling through the humidification chamber (see the claims; col. 8, lines 60-col. 9, line 10; col. 13, figs. 4-6 and 13-15.) The humidified gas is used to hydrate the polymer electrolyte membrane of the fuel cell (col. 4, lines 30-40.) As the prior art does not teach such a method including a wick prepared by mixing the claimed components, the claims are allowable in scope over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Examiner Correspondence

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's

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supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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2/18/05